11. Appendices

Meeting Minutes

Davis - Dalwig Legislative Act

Lake Perris State Recreation Area Information

MWD Memorandum

Calculations/Quantities

The Resources Agency
Department of Water Resources
Division of Operations and Maintenance

Perris Dam Reconnaissance Study – Kick off Meeting

March 9, 2006

Resources Bldg, Room 601
9:00 – 11:00 am

1. Introductions

2. Background

3. Purpose, Goals, and Objectives

4. Deliverables/Schedule

5. Roles and Responsibilities
   a. Operations and Maintenance (HQ and Southern FD)
   b. Washington Group International
   c. Engineering (includes Real Estate Branch)
   d. Environmental Services
   e. State Water Project Analysis Office
   f. Cooperating State Agencies (Parks & Recreation, Fish & Game)
   e. State Water Contractors

8. Points of Contact/Team Member Appointments

9. Team Meeting Logistics

10. Cost Object

11. Next Steps

The Resources Agency
Department of Water Resources
Division of Operations and Maintenance

Perris Dam – Background Information

March 9, 2006

MAIN PARTICIPANTS

➢ Owner:	CA Department of Water Resources (DWR)
➢ DWR Participants:	Operations and Maintenance (O&M) - Lead Engineering (DOE) (Real estate also) Environmental Services State Water Project Analysis Office
➢ State Dam Safety Regulator:	DWR's Division of Safety of Dams (DSOD)
➢ Water Contractors:	Metropolitan Water District (MWD) Coachella Valley Water District Desert Water Agency
➢ Parks, Recreation, & Camping:	CA Department of Parks & Recreation
➢ Fishing and Wildlife:	CA Department of Fish & Game
➢ Boating:	CA Department of Boating & Waterways

DAM STATISTICS

➢ Height at Maximum Section:	128 feet
➢ Dam Crest Elevation:	1600 feet
➢ Spillway Crest Elevation:	1590 feet
➢ Maximum Operating Elevation:	1588 feet
➢ Storage Capacity at Spillway Crest:	131,452 acre-feet
➢ Surface Area at Spillway Crest:	2292 acres

RECREATION

- Fishing, Hiking, Biking, Hunting, Boating, Camping, Swimming, Picnicking, Rock Climbing, Horseback Riding.

T&E SPECIES IDENTIFIED AT RESERVOIR

- Least Bell's Vireo
- Western Willow Flycatcher

Stevens kangaroo rat
Cinatcatcher

KEY DATES AND EVENTS

- June 2005 – Perris Dam draft seismic re-evaluation study report given to O&M.
- July 2005 – DSOD concurred with proposed reservoir restriction of Elevation 1563, 27 feet below the spillway crest, as interim safety measure.
- August 15, 2005 – Started lowering Lake Perris. Reached the restricted level (Elev. 1563) on October 30, 2005.
    - Reservoir Storage Reduced by 52,362 Ac-Ft = 42%
    - Reservoir Surface Area Reduced by 410 Acres = 18%
- October 2005 – Independent Safety Review Consultant Board concurred with DOE's engineering findings. Received DWR Executive approval to proceed with the remediation of Perris Dam to restore to original maximum operating elevation.
- February 7, 2006 – Received letter from MWD requesting a reconnaissance study to be completed by March 8, 2006 (see attached spreadsheet prepared by MWD for Study Matrix of Options).
    - Empty Reservoir: 0 acre-feet
    - Lowered Reservoir (Recreation Only): 44,000 acre-feet (~Elev. 1545)
    - Elevation 1563: 74, 500 acre-feet
    - Elevation 1588: * 131,452 acre-feet
    - Expanded Reservoir: 500,000 ~ 700,000 – 1,000,000 acre-feet

* also optimto include water quality improvements

Perris Dam Reconnaissance Study
Kick Off Meeting Participants
March 9, 2006

NAME	ORGANIZATION	TELEPHONE	E-MAIL
JOSEPH EHASZ	WASHINGTON GP	916-835-5200	joseph.ehasz@wgint.com
GLEN ROCKWELL	"	520-817-8296	grock520@MSN.com
RUDY OJEDA	DEPT OF BOATING & WATERWAYS	916-263-8134	rojeda@dbw.ca.gov
Zachary Ahinga	Coachella Valley Water District	760-398-2661	zahinga@cvwd.org
* GARY WATTS	STATE PARKS	951-443-2423	GWATTS@PARKS.CA.GOV
* Jordyn Brown coord. cult. env.	DWR	916 445-6197	cbrown@water.ca.gov
* [illegible]	DWR	916 445 6478	[illegible]@water.ca.gov
[illegible]	DWR	916 445 6127	[illegible]@water.ca.gov
Christopher Huitt	DWR	916 445-6392	huitt@water.ca.gov
JOHN DUNCK	DWR-SFO	661 805 8024	jduncke@water.ca.gov
DAN PETERSON	DWR-O&M	916 653-9978	danp@water.ca.gov
Rob Cooke	DWR-SWPAO	(916) 653-5945	Cooke@water.ca.gov
JEANNIE KUTTEL	DWR-DOE	(916) 653-1236	jeannie@water.ca.gov
RICH SANCHEZ	DWR-O&M	916-653-3014	richs@water.ca.gov
Teresa Sutliff	DWR-O&M	916-653-8350	tsutliff@water.ca.gov
~~Chris~~ Cliff Winston	DWR-DOE	916-653-5690	cwinston@water.ca.gov
Mike GIUSTI	DFG	951 852-6386	Bgiusti@dfg.ca.gov

March 9, 2006

Perris Dam Reconnaissance Study

Attendee List From Metropolitan Water District

Name	Org.	Phone Number	E-Mail Address
Wally Lieu	Engineering	(213) 217-6008	wlieu@mwdh2o.com
Wayne Bousley	Engineering	(213) 217-6545	wbousley@mwdh2o.com
Curtis Baynes	Real Property	(213) 217-6208	cbaynes@mwdh2o.com
Kamyar Motamedi	Engineering Services	(213) 217-6581	kmotamedi@mwdh2o.com
Chris Hill	Engineering Services	(213) 217-7969	chill@mwdh2o.com
Brian Folsom	Engineering Services-- Program Management	(213) 217-6350	bfolsom@mwdh2o.com
Laura Simonek	Engineering Services-- Environmental	(213) 217-6242	lsimonek@mwdh2o.com
Christiana Gruber	Water Resources Management	(213) 217-5795	cgruber@mwdh2o.com
Kevin Donhoff	Water Resources Management	(213) 217-6359	kdonhoff@mwdh2o.com
Mike Morel	Water Systems Operations	(213) 217-6592	mmorel@mwdh2o.com
Arleen Arita	Engineering-- Program Management	(213) 217-6460	aarita@mwdh2o.com

The Resources Agency
Department of Water Resources
Division of Operations and Maintenance

Perris Dam Reconnaissance Study
Roles and Responsibilities

March 9, 2006

1. Operations and Maintenance
    a. Manage project
    b. Coordinate with, define tasks for, and fund consultant
    c. Deliver report to MWD and other stakeholders
    d. Provide information on reliability of SWP facilities
    e. Provide water quality information
    f. Provide imput for operation of the reservoir

2. Washington Group International
    a. Prepare report and delivering to O&M
    b. Collect information
    c. Facilitate regular meetings with team members
    d. Provide engineering services
    e. Provide geologic/foundation impacts
    f. Determine downstream impacts

3. Engineering
    a. Provide real estate information for expanded dam options
    b. Provide cost estimates for land purchases for expanded dam options
    c. Provide geologic reports or engineering drawings to consultant

4. Environmental Services
    a. Provide permitting requirements and cost estimates for permits

5. State Water Project Analysis Office
    a. Provide information regarding existing contract with stakeholders

6. Department of Parks & Recreation
    a. Determine impacts to recreation usage
    b. Determine impacts to DPR's program

7. Department of Fish & Game
    a. Determine impacts to fisheries and wildlife

8. Department of Boating and Waterways
    a. Determine required boating facilities for all options and cost estimates

9. State Water Contractors
    a. Provide operational needs for the future
    b. Provide imput for operation of the reservoir

The Resources Agency
Department of Water Resources
Division of Operations and Maintenance

Meeting Minutes

Perris Dam Reconnaissance Study
Kick Off Meeting

March 9, 2006

PARTICIPANTS

See attached lists.

INTRODUCTION

A reconnaissance study kick off meeting for Lake Perris was held at the Resources Building in Sacramento and via videoconference on March 9, 2006. MWD representatives were able to video in for the meeting. Attached are the agenda, background information, and roles and responsibilities that were provided at the meeting.

On February 7, 2006, the Metropolitan Water District (MWD) requested the Department of Water Resources (DWR) perform a reconnaissance study for Lake Perris to consider a full range of options at the site. The reconnaissance study will be used to develop a long-term plan for Lake Perris that presents the best value for all stakeholders. The reservoir was restricted to Elevation 1563 in July 2005 as an interim safety measure until the dam seismic stability issues are resolved.

DWR's consultant, Washington Group International (WGI), will be preparing the reconnaissance study report with input from DWR, California State Departments of Parks and Recreation (DPR), Fish and Game (DFG), Boating and Waterways (DBW). DWR's State Water Contractors, MWD, Coachella Valley Water District, and Desert Water Agency, will also provide input.

DISCUSSION

Discussion items included report, schedule, roles and responsibilities, points of contact, team meeting logistics, and next steps. The expanded reservoir options will include a 500,000, 700,000, and 1,000,000 acre-foot reservoir. Information from a 1990 reconnaissance study that was performed during the planning of Diamond Valley Lake

that included an enlarged Lake Perris option would be utilized to the extent possible. WGI expressed concern with some of the information in the report being outdated. During the discussions, MWD reported that the Lake Perris enlargement options should consider being able to pump water from their Colorado River Aqueduct system. This would include new pipelines and pumping facilities.

Report: MWD had requested DWR in their Feb. 7, 2006 letter that a draft reconnaissance study report be completed by March 8, 2006. During the meeting MWD expressed urgency for completing a draft report by mid April 2006. However, WGI reported that completing a draft report in approximately 5 weeks could not be done. In addition, WGI expressed that completing a comprehensive study that included reconnaissance level engineering and cost estimates by June 2006 could not be completed either. WGI reported that normally these types of studies take two years to complete. WGI recommended identifying critical issues and requirements and using weighting factors for impacts in comparing the options. Identifying critical issues early on in the process would most likely rule out some of the options and identify the preferred options requiring more investigation. WGI's proposal was found agreeable by the meeting participants. WGI plans to gather and compile information from the necessary stakeholders to prepare the report. MWD agreed to provide assistance and support to help with the preparation of the report.

Schedule: It was agreed that a draft report will be completed the first week of June 2006 and a final report by the end of June 2006. WGI will provide interim updates of progress every three weeks. Interim updates, the draft report, and final report will be transmitted to all appropriate stakeholders.

Roles and Responsibilities: The roles and responsibilities are attached. The only significant changes to the handout are that DFG didn't feel it had staff to provide input to the study. It was agreed DWR's Division of Environmental Services will provide fish and wildlife input with review by DFG. WGI will address the socio-economic impacts for each option.

Points of Contact: The points of contacts listed below will work closely with WGI to provide input.

Teresa Sutliff	DWR O&M HQ – Project Coordinator
John Bunce	DWR O&M Southern Field Division – Operations
Jeanne Kuttel	DWR Division of Engineering (DOE) – Project Coordinator
Carolyn Brown	DWR DES – Environmental Resources
Janis Offerman	DWR DES – Cultural Resources
Cliff Winston	DWR DOE Real Estate Branch
Rob Cooke	DWR State Water Project Analysis Office (SWPAO)
Gary Watts	DPR-Regional Manger

Ron Krueper	DPR – Park Superintendent
Terry Foreman	DFG
Steve Watanabe	DBW
Brian Folsom	MWD
Zachary Ahinga	Coachella Valley Water District
Mark Johnson	Coachella Valley Water District

Ron Krueper (rkrueper@parks.ca.gov), Terry Foreman (tforeman@dfg.ca.gov), Steve Watanabe (swatanabe@dbw.ca.gov), and Mark Johnson (mjohnson@cvwd.org) did not attend but were represented at the meeting.

Team Meeting Logistics: The next meeting and an inspection of the dam and reservoir are scheduled for March 20, 2006 at Lake Perris. WGI agreed to send out an agenda for this meeting and determine who would be attending so DWR and DPR could make the necessary arrangements. It was noted that MWD would be sending some of their staff. It was agreed WGI will be preparing and sending out a schedule of future meetings.

Next Steps: WGI will begin gathering information and arranging next team meetings.

Other: It was agreed water quality improvements to the Lake Perris and Perris Dam facilities would be considered for each option. This included relocation or modification of the existing inlet line and improvements to the outlet tower.

POST MEETING NOTES

Additional contacts provided after the meeting:

Fei-fan Yeh (fei-fan.yeh@wgint.com)	WGI
Warren Paul (warren.paul@wgint.com)	WGI
Dave Samson (samson@water.ca.gov)	DWR SWPAO (Point of Contact)
Paul Farris (pfarris@water.ca.gov)	DWR Real Estate Branch (Point of Contact)
David Luker (dlucker@dwa.org)	Desert Water Agency

PERRIS DAM RECONNAISSANCE STUDY
RECON MEETING AND TOUR

Monday, March 20, 2006
DPR Conference Room at Perris Dam

Washington Group participation from approximately 11:00am til 12:30pm.

Agenda for Washington Group segment:

1. Introductions
2. Reconnaissance Study Status
3. Study Issues
4. Next Meeting

Requested participants (in addition to Project Management Staff):

1. Representatives from DWR and MWD Engineering Groups
2. Representatives from DWR and MWD Operations Groups
3. Representatives from DWR and MWD Environmental and Cultural Groups
4. Representatives from DWR and MWD Water Quality Groups
5. Representative from DWR Real Estate Group
6. Representatives from DPR responsible for Perris Reservoir operations
7. Representative from Fish and Game
8. Representative from Boating and Waterways (DPR may be able to handle)

In the days ahead Washington Group will be submitting and discussing requests for information and questions in support of the report preparation with participating groups; we will brief the group at the meeting on the issues which are currently foreseen and request input as to any additional issues.

Perris Recon Mtg 3/20/06

NAME	COMPANY	Responsibility	Phone
JOE EHASZ	WASHINGTON	PROG. DIR.	916-835-5200
GLEN ROCKWELL	"	PROJ. ENG.	520-877-8256
FEI-FAN YEH	"	Planning & Hydraulic	(909)-599-5705
WALT B[illegible]	[illegible]	Associate Biologist	7[illegible]358-2847
TERRY FOREMAN	" " "	SR. BIOL. - Fishery	760-485-2281
GARY WATTS	CA. STATE PARKS	DISTRICT SUPERINTENDENT	951-443-2423
Jaime De Santiago	DWR / SFD	Eng. W.R.	(66)702-1136
STEVE WATANABE	BOATING; WATERWAYS	DIVISION CHIEF	(916) 263-8147
Chris Hill	MWD - Safety of Dams	Sr. Engr	213-217-7969
Wally Lien	MWD - Engr	Asst Sec Mgr Engr	(213) 217-6008
BRIAN FOLSOM	MWD - ENGR	PROJECT MGR	(213) 217-6350
Teresa Sutliff	DWR-O&M	Project Coord.	(916) 653-8350
Kamyar Motamedi	MWD - ENGR	Senior Eng.	(213) 217-6581
PAUL FARRIS	DWR - REAL ESTATE	SR. LAND AGENT	(916) 653-5815
RYAN MULHOEK	DESERT WATER AGENCY	ASST ENG.	(760) 323-4971
GENO YOUNG	DWR - SFD	WATER OPS.	(661) 944-8611
Mike Morel	MWD - OPS	OPERATIONS + Short Term Planning	(213) 217-6592
CHRISTIANA GRUBER	MWD - WRM	Contract Admin.	(213) 217-5795
KEVIN DONHOFF	MWD - WRM	SWP PROGRAMS	(213) 217-6359
DAN PETERSON	DWR - O&M	SWP ENVIRONMENT	916 653-9978
Ken Kietzer	DPR	Environment	951-453-4250
Enrique Arroyo	DPR	Planning	(951) 940-5664
Larrynn Carver	DPR	Archaeology	951-443-2410
RON KRUEPER	DPR	PERRIS PARK SUP.	951-940-5668

WASHINGTON GROUP INTERNATIONAL

Meeting Minutes

Lake Perris Reconnaissance Study

Lake Perris State Recreation Area
Monday, March 20, 2006

PARTICIPANTS

See attached list. Also attending by telephone conference were Janis Offerman and Carolyn Brown of the DWR Division of Environmental Services.

AGENDA

The meeting generally followed the attached agenda. The Reconnaissance Study portion of the meeting lasted from approximately 11:00 am to 12:30 pm. It was held in the Museum as a follow-on to another meeting of some of the same participants and to allow a later tour of the dam and recreation facilities.

DISCUSSION

Following introductions, Washington reported that their work has been focused on gathering information and finding out what work on the various reservoir level options has already been done by others. A list of questions was submitted to MWD and discussions followed, with answers to be provided at this meeting. Also, a list of known issues that need to be evaluated with each option was distributed to the persons identified as points of contact.

Regarding recreation issues, a major one is that all of the land surrounding the reservoir is set aside in a Riverside County plan for threatened and endangered species, much of it for the Stevens kangaroo rat. Mitigation would most likely require acquiring a multiple of the submerged acreage of suitable kangaroo rat habitat.

Water-based uses of the recreation area are in very large demand, including swimming, boating and fishing. At present, 50% of the normal boating is lost because of the reduced reservoir surface area. Swimming is sometimes reduced because of water quality degradation. This would be worsened with a 40,000 AF reservoir.

The loss of non-mountainous land surrounding the reservoir that is heavily used for camping, picnicking, hunting, equestrian use, bicycling, hiking and rock climbing would be a serious issue. Cultural issues exist, but there are no hazardous waste sites known to DPR.

MWD reported that Perris is used as backup for the Mills Treatment Plant, the Colorado River Aqueduct and the San Diego Canal. An estimated tens of thousands of AF per year are put into and taken out of Perris, mostly in the winter months when outages of other systems are scheduled. A reservoir size of 40,000 AF would cause MWD serious operational problems. No analysis has been done on what effects would be on MWD operation with a 74,000 AF reservoir. MWD is quite satisfied with the original 132,000 AF size of the reservoir. Additional sizing above the 132,000 AF seemed to of interest to MWD, however, no extremely urgent need was expressed.

There are about 20 A. of wetlands downstream of the dam that are supported by the seepage water from the dam. Also, it was reported that the housing development downstream from the dam is supplied with domestic water from wells using groundwater (also fed by seepage).

MWD reported that Riverside County has maps of the area at a scale of 1:24,000 and 4 ft. contour intervals that have been obtained and copies given to Washington. MWD also provided answers to Washington's earlier written questions, generally indicating that little definitive work has been done on the larger reservoir options. The reservoir volumes and areas were provided for the three expanded reservoir sizes. A multilevel outlet is desired for any of the options and, probably, a multilevel intake also. The long-term plan for Perris water supply for the original and larger options is to use the Inland Feeder, with inlet at the east end of the reservoir.

MWD agreed that they could look at dam cross-sections and develop quantities as indicators of probably cost level for the qualitative comparison of options.

NEXT MEETING

The next meeting was proposed for DWR offices on or about April 5. (It has since been scheduled for 10:30 am to 12:30 pm on April 6.

TOUR

After lunch Gary Watts and Ron Krueper of DPR led a tour of the recreation area and its facilities, taking the participants all the way around the reservoir and into some of the adjacent areas. All were impressed with the extensive facilities, the DPR efforts in maintaining facilities and providing services and the very heavy use of the area by the public, particularly in the summer months. It was very obvious to all, especially Washington, that the Lake Perris Area is very dependent on the present recreation facilities. It was also stated that the DPR could possibly consider a somewhat larger reservoir, perhaps a 240,000 AF option, and still be able to develop the necessary recreation benefits to satisfy the present demands or at least be equivalent to the present conditions.

PERRIS DAM RECONNAISSANCE STUDY MEETING

Thursday, April 6, 2006, 10:30 am
DWR Conference Room 601

AGENDA

1. Introductions

2. Area-Capacity Curves
   - Introduce latest Area-Capacity Curve

3. Options Matrix
   - Present Matrix to confirm items for consideration
   - Discuss weighting and other factors

4. Construction magnitude vs. cost
   - Discuss various cross-sections and dike requirements
   - Discuss costing issues
   - Discuss MWD concerns

5. Operations
   - Discuss MWD future operations
   - F. Yeh's analysis

6. Recreation
   - Update on data supplied by DPR

7. Socio-economic
   - Request copy of earlier economic study of recreation impacts

8. Other Items for discussion

9. Next meeting

ATTENDEES AT LAKE PERRIS RECONNAISSANCE STUDY MEETING DWR - APRIL 6, 2006

Sacramento - DWR

John Bunce - DWR O&M
Gary Watts - DPR
Janis Offerman - DWR DES
Jeanne Kuttel - DWR DOE
Dan Peterons - DWR O&M
Walt Beer - DFG
Teresa Sutliff - DWR O&M
Joe Ehasz - WGI
Glen Rockwell - WGI

Los Angeles - MWD

Folsom, Brian (Engineering)
Lieu,Wally M (Engineering)
Hill,Christopher J (Engineering)
Morel,Mike (Operations)
Gruber,Christiana (Water Resource Management)
Donhoff,Kevin A (Water Resource Management)
Motamedi,Kamyar (Engineering)
Simonek,Laura J (Environmental Planning)
Arita,Arleen A (Engineering)

Video from Pearblossom:

Surjit Bajaj - DWR O&M
Bill Stewart - DWR O&M
Jaime DeSantiago - DWR O&M
Geno Young - DWR O&M

Teleconference:

Mark Krause - DWA
Terry Foreman - DFG
Zachary Ahinga - CVWD
Fei-fan Yeh - WGI
Derek Adachi - DWR DES

WASHINGTON GROUP INTERNATIONAL

Meeting Minutes

Lake Perris Reconnaissance Study

Department of Water Resources, Sacramento
Thursday, April 6, 2006, 10:30 – 12:15

PARTICIPANTS

See attached list.

AGENDA

The meeting followed the attached agenda.

AREA-CAPACITY CURVE

Following introductions, Washington reported that the area-capacity curve has been studied and revised to be compatible with data provided by MWD. The figures for elevation and capacity for the options being studied are now:

1542 ft.	40,000 AF
1563	72,000
1588	126,841
1640	257,000
1706	500,000
1752	700,000
1814	1,000,000

The largest change from figures being used earlier is for the 500,000 AF reservoir, changing from 1720 ft. to 1706 ft. A new area-capacity curve was distributed.

OPTIONS MATRIX

The major topic for discussion was an explanation of the options matrix tables. Tables for Operations, Recreation, Environmental, Property, Water Quality, Regional Socio-Economic and Permitting were distributed. The tables for Operations included both an issue by issue brief commentary for each reservoir option as well as a table for insertion of screening evaluation numbers and weighting for each sub-issue, the screening numbers to range from –5 to +5 and the weighting to total 100 percent. The tables for the other major issues were only for the screening evaluation numbers and weighting. Also, a Summary table for all major issues, including some that have no sub-issues, was distributed. At present, this has suggested possible weighting, but this will be discussed in more detail at the next meeting. The screening evaluation figures will transfer from the sub-topic sheets as the total weighted figure for each option. It was requested that the specialists in each field from the participating organizations consider and fill out both the commentary table and the screening evaluation table for their discipline for maximum benefit for the study. The following leads and team members were appointed to complete the forms by April 14 and return them to Glen Rockwell:

Property: Paul Farris (Lead), Gary Watts, Ron Krueper, Terry Foreman, Curtis Daynes
Environmental: Carolyn Brown (Lead), Janis Offerman, Derek Adachi, Laura Simonek, Gary Watts, Ron Krueper, Terry Foreman, Dan Peterson

Recreation: Gary Watts (Lead), Ron Krueper, Steve Watanabe, Terry Foreman, Kamyar Motamedi
Permitting: Dan Peterson (Lead), Carolyn Brown, Janis Offerman, Laura Simonek, Teresa Sutliff, Terry Foreman, Chris Hill
Water Quality: Bill Taylor (Lead), Dan Peterson, Gary Watts, Ron Krueper, Terry Foreman
Regional Socio-Economic: Glen Rockwell (Lead), Gary Watts, Ron Krueper, Laura Simonek, Kamyar Motemedi
Operations: Mike Morel (Lead), John Bunce, Geno Young

CONSTRUCTION MAGNITUDE vs. COST

The possibility of constructing a dike or dam at the east end of the reservoir was suggested as a way to preserve much of the most sensitive kangaroo rat habitat. This would add significant construction to the larger reservoirs. MWD's concern that the study include cost estimates for construction was tabled and DWR agreed to consider it further. MWD also suggested consideration of excavating the reservoir to provide more volume; this could require a new lower level intake to the outlet works to take advantage of that volume.

OPERATIONS

MWD confirmed that they have received the operations matrix analysis referenced above and will provide comments as appropriate.

RECREATION

Washington acknowledged with appreciation the information on recreation that has been provided by DPR.

SOCIO-ECONOMIC

DPR had advised of the availability of an economic study that included Lake Perris done in 1995 and provided Washington with a copy of the report at the meeting.

NEXT MEETING

The next meeting was proposed to be held on or about May 5 at a location to be advised.

PERRIS DAM RECONNAISSANCE STUDY MEETING

Friday, May 5, 2006
10:00 am – 2:30 pm w/lunch break
Conference Room US1-102
MWD, 700 N. Alameda Ave.
Los Angeles

(Teleconference Number 213-217-7888, Conf. Code 25007)

AGENDA

1. Introductions

2. Reservoir Option Data

3. Options Matrix
   - Review matrices prepared
   - Discuss weighting

4. Construction magnitude
   - Discuss various dam and dike requirements

5. Other Items for discussion

6. Next meeting

PERRIS DAM RECONNAISSANCE STUDY

MEETING PARTICIPANTS

MAY 5, 2006

NAME	ORGANIZATION	TELEPHONE	E-MAIL
Joe Ehasz	Washington Group	916-835-5200	joseph.ehasz@wgint.com
Glen Rockwell	"	520-877-8296	grock520@msn.com
Brian Folsom	MWD	213-217-6350	bfolsom@mwdh2o.com
Fei-Fan Yeh	WGI	209-599-5705	fei-fan.yeh@wgint.com
Paul Farris	DWR Real Estate	916-653-5815	pfarris@water.ca.gov
Dan Peterson	DWR O&M	916 653-9978	danp@water.ca.gov
Teresa Sutliff	"	916 653-8350	tsutliff@water.ca.gov
Rich Sanchez	"	916-653-3014	richs@water.ca.gov
John Bunce	DWR SFD	6618038024	jbunce@water.ca.gov
Walt Beer	DFG	(916) 358-2847	wbeer@dfg.ca.gov.
Mike Morel	MWD	(213) 217-6576	mmorel@mwdh2o.com
Christiana Gruber	"	(213) 217-5795	cgruber@mwdh2o.com
Gary Watts	DPR	951-443-2423	GWATTS@PARKS.CA.GOV
Ron Kriebel	DPR	951-940-5695	RKRIEBEL@PARKS.CA.GOV
C. Dee Dillon	SWC	916-316-3478	cdillon@swc.org
Eric Chapman	SWC	(916) 447-7357	echapman@SWC.org
Angela Aldridge	MWD-Real Estate	(213) 217-6394	aaldridge@mwdh2o.com
Russell Shane	MWD-RL EST	2132175702	rshane@mwdh2o.com
Laura Simonek	MWD-Environmental	213) 217-6242	LSIMONEK@MWDH2O.com
Curtis Baynes	MWD-Land	213 217-6209	cbaynes@mwdh2o.com
Sherman Hom	MWD-Real Estate	213 217-7765	shom@mwdh2o.com
Kamyar Motamedi	MWD-PM	213 217-6581	Kmotamedi@mwdH2o.com
Arleen Arita	MWD	213-217-6460	aarita@mwdh2o.com

WASHINGTON GROUP INTERNATIONAL

Meeting Minutes

Perris Dam Reconnaissance Study

Metropolitan Water District, Los Angeles
Friday, May 5, 2006, 10:00 – 2:45

PARTICIPANTS

See attached list.

AGENDA

The meeting followed the attached agenda.

RESERVOIR OPTION DATA

Following introductions, Washington presented a table with data on the various reservoir options. Copies were also sent by e-mail prior to the meeting and distributed at the meeting.

OPTIONS MATRIX

The major topic for discussion was discussion of the options matrix tables. The tables were projected onto a screen, discussed and modified per the discussion. Rating matrices for Recreation, Environmental, Property, Operations, Water Quality, Seepage/Groundwater, Reliability/Safety Water Supply (changed to Water Storage) and the Summary were discussed. Others were omitted in order to have time to fully discuss the weightings to be applied in the Summary Rating Matrix. The Summary Rating Matrix with the agreed-upon weighting for each major issue is attached; the modified issues matrices will be sent later by separate e-mail.

CONSTRUCTION MAGNITUDE

Construction of the dike or dam at the northeast end of the reservoir as a way to preserve much of the most sensitive kangaroo rat habitat was discussed. It was agreed that this represents a conservative approach to minimizing needed acquisition of mitigating habitat land. Washington will provide information as to the alignment and amount of inundation reduction provided by the dams.

OTHER ITEMS

It was confirmed that the schedule established for submittal by Washington of the Draft Report is for the first week of June. The next meeting will discuss the Draft Report.

NEXT MEETING

The next meeting was proposed to be held on or about June 14 at a location to be advised, probably at Lake Perris.

PERRIS DAM
RECONNAISSANCE STUDY
MEETING

Wednesday, June 14, 2006, 9:30 am
Indian Museum and Visitor's Center at Lake Perris

1. Introductions (All)
2. Review Draft Report Results (WGI)
   - Discussion of parametric studies
   - Alternative technical solutions for northeast dam
3. Discussion of Draft Report (All)
4. Schedule for Final Report (WGI)
5. Post Reconnaissance Report Activities/Schedule (Rich)
6. Comments/Questions (All)

PERRIS DAM RECONNAISSANCE STUDY

MEETING PARTICIPANTS

JUNE 14, 2006

NAME	ORGANIZATION	TELEPHONE	E-MAIL
DAVE SAMSON	DWR	916 653-5597	Samson@water.ca.gov
RICH SANCHEZ	DWR	916 653-3014	richs@water.ca.gov
Chris Hill	Metropolitan W.D.	213-217-7969	chill@mwdh2o.com
Arleen Arita	MWD	213-217-6460	aarita@mwdh2o.com
BRIAN FULSOM	MWD	213-217-6350	bfulsom@mwdh2o.com
CHRISTIANA GRUBER	"	213-217-5795	cgruber@mwdh2o.com
RON KRUEPER	DPR	951 940-5668	RKRUEPER@PARKS.CA.GOV
Angela Aldridge	MWD	213 217 6394	aaldridge@mwdh2o.com
GENO YOUNG	SFD/DWR	661 944-8611	GYOUNG@WATER.CA.GOV
Jaime De Santiago	SFD/DWR	(661) 944-8574	JDes@water.ca.gov
PAUL FARRIS	DWR	916-653-5815	PFARRIS@WATER.CA.GOV

PERRIS DAM RECONNAISSANCE STUDY

MEETING PARTICIPANTS

JUNE 14, 2006

NAME	ORGANIZATION	TELEPHONE	E-MAIL
Joe Enasz	Washington	916-835-5200	Joseph.ehasz@wgint.com
Carolyn Brown	DWR - Envtl	916 445-1657	cbrown@water.ca.gov
Janis Offermann	DWR - Environ.	916 445-6178	jmiso@water.ca.gov
Gary Watts	DPR	951-443-2423	GWATTS@PARKS.CA.GOV
Zachary Ahinga	Coachella VWD	760-398-2661	zahinga@cvwd.org
Kamyar Motamedi	mwd	213-217-6581	Kmotamedi@mwdH2o.com
Mark Krause	DWA	760-323-4971	MKRAUSE@DWA.ORG
Glen Rockwell	Washington	520-877-8296	grock520@msn.com

WASHINGTON GROUP INTERNATIONAL

Meeting Minutes

Perris Dam Reconnaissance Study

Lake Perris State Recreation Area
District Headquarters

Wednesday, June 14, 2006, 9:30 – 3:45

LOCATION

The location, originally planned for the Indian Museum and Visitor's Center, was changed to the conference room of the DPR District Headquarters because of a scheduling conflict. Excellent display facilities and equipment were available and used for the meeting discussions.

PARTICIPANTS

See attached lists.

AGENDA

The meeting generally followed the attached agenda.

DISCUSSION

WGI presented the summary results of the study by displaying and reviewing the Summary Matrix table, representative issues sensitivity tables and the summary Sensitivity Analyis Rankings table, all as included in the Perris Dam Reconnaissance Draft Report. These showed that the 1588 ft. and 1640 ft. reservoir elevation options were the most highly rated options for the base case and for almost all of the sensitivity analysis adjustments. Only when the Water Storage issue weighting factor was increased by 100 percent or the environmental impacts weighting factor was decreased by 100 percent did the two most highly rated options change.

The inclusion of the northeast dam as an integral part of the study was discussed. The analysis was intended to be based on that arrangement. It was agreed that all issues had been rated on that basis except for environmental and that the environmental team will re-examine all sub-issues to be consistent and report any differences to WGI for inclusion in the analysis of the final report.

The group went through the Draft Report page by page with discussion and suggested corrections, additions and modifications in wording. These were all duly noted, and the agreed-upon revisions will be made by WGI. DWR gave their marked copy of the report to WGI for use in the revisions. The changes are not extensive and do not change the basic results and conclusions.

The attending group agreed with the summary results of the study.

SCHEDULE FOR FINAL REPORT

WGI will submit the Final Report to DWR by June 30, and the report will be distributed to other participants in the first week of July.

POST RECONNAISSANCE REPORT ACTIVITIES

Rich Sanchez explained that DWR will accept official comments on the report from the participating groups in July. The plan is to then commence with more detailed studies for preliminary design and cost estimates for the most preferred option or the top two favored options based on the decision reached by DWR and the major stakeholders.

COMMENTS/QUESTIONS

There were no further comments or questions.

From: Enrique Arroyo
To: RKRUEPER@parks.ca.gov
Date: 6/13/2006 4:30:18 PM
Subject: Re: Davis-Dalwig Act

The following is the entire chapter as it appears at:
http://www.leginfo.ca.gov/cgi-bin/calawquery?codesection=wat

WATER CODE
SECTION 11900-11901

11900. The Legislature finds and declares it to be necessary for the general public health and welfare that preservation of fish and wildlife be provided for in connection with the construction of state water projects.

The Legislature further finds and declares it to be necessary for the general public health and welfare that facilities for the storage, conservation or regulation of water be constructed in a manner consistent with the full utilization of their potential for the enhancement of fish and wildlife and to meet recreational needs; and further finds and declares that the providing for the enhancement of fish and wildlife and for recreation in connection with water storage, conservation, or regulation facilities benefits all of the people of California and that the project construction costs attributable to such enhancement of fish and wildlife and recreation features should be borne by them.

The Legislature further finds and declares it to be the policy of this State that recreation and the enhancement of fish and wildlife resources are among the purposes of state water projects; that the acquisition of real property for such purposes be planned and initiated concurrently with and as a part of the land acquisition program for other purposes of state water projects; and that facilities for such purposes be ready and available for public use when each state water project having a potential for such uses is completed.

11903. As used in this chapter, "project" means any physical structure to provide for the conservation, storage, regulation, transportation, or use of water, constructed by the State itself or by the State in co-operation with the United States.

11905. The provision of this chapter shall apply to the Central Valley Project and every other project constructed by the State itself or by the State in co-operation with the United States, including, but not limited to, the State Water Resources Development System.

11910. There shall be incorporated in the planning and construction of each project those features (including, but not limited to, additional storage capacity) that the department, after giving full consideration to any recommendations which may be made by the Department of Fish and Game, the Department of Parks and Recreation, the Department of Boating and Waterways, any federal agency, and any local governmental agency with jurisdiction over the area involved, determines necessary or desirable for the preservation of fish and wildlife, and necessary or desirable to permit, on a year-round

basis, full utilization of the project for the enhancement of fish and wildlife and for recreational purposes to the extent that those features are consistent with other uses of the project, if any. It is the intent of the Legislature that there shall be full and close coordination of all planning for the preservation and enhancement of fish and wildlife and for recreation in connection with state water projects by and between the Department of Water Resources, the Department of Parks and Recreation, the Department of Boating and Waterways, the Department of Fish and Game, and all appropriate federal and local agencies.

11910.1. In furtherance of the policies specified in Section 11910, the Department of Fish and Game, the Department of Parks and Recreation, the Department of Boating and Waterways, and other governmental agencies shall submit their recommendations or comments on reconnaissance studies or feasibility reports of the Department of Water Resources relating to any project or feature of a project within 60 days following receipt of a formal request for review from the Department of Water Resources.

11910.5. Such recreational purposes include, but are not limited to, those recreational pursuits generally associated with the out-of-doors, such as camping, picnicking, fishing, hunting, water contact sports, boating, and sightseeing, and the associated facilities of campgrounds, picnic areas, water and sanitary facilities, parking areas, view points, boat launching ramps, and any others necessary to make project land and water areas available for use by the public.

11911. The planning for public recreation use and fish and wildlife preservation and enhancement in connection with state water projects shall be a part of the general project formulation activities of the Department of Water Resources, in consultation and co-operation with the departments and agencies specified in Section 11910, through the advance planning stage, including, but not limited to, the development of data on benefits and costs, recreation land use planning, and the acquisition of land. In planning and constructing any project, the department shall, to the extent possible, acquire all lands and locate and construct, or cause to be constructed, the project and all works and features incidental to its construction in such a manner as to permit the use thereof for the preservation and enhancement of fish and wildlife and for recreational purposes upon completion of the project.

11912. The department, in fixing and establishing prices, rates, and charges for water and power, shall include as a reimbursable cost of any state water project an amount sufficient to repay all costs incurred by the department, directly or by contract with other agencies, for the preservation of fish and wildlife and determined to

be allocable to the costs of the project works constructed for the development of that water and power, or either. Costs incurred for the enhancement of fish and wildlife or for the development of public recreation shall not be included in the prices, rates, and charges for water and power, and shall be nonreimbursable costs.

11913. (a) The Legislature hereby declares its intent that, except as funds are provided pursuant to Section 11915, there shall be included in the budget for the department for each fiscal year, and in the Budget Act for each fiscal year, an appropriation from the General Fund of the funds necessary for enhancement of fish and wildlife and for recreation in connection with state water projects as provided in this chapter.

(b) Notwithstanding subdivision (a), the obligation of the State Water Resources Development System to reimburse the California Water Fund pursuant to paragraph (3) of subdivision (b) of Section 12937 shall be reduced by the total of unreimbursed department costs incurred in the 1988-89 fiscal year and each succeeding fiscal year for enhancement of fish and wildlife and for recreation pursuant to this chapter. The reduction shall be contingent upon annual approval by the Legislature, in the Budget Act or other act, of the department's allocation of those costs.

11914. The department shall make any necessary revisions in the allocation of costs of any state water project works constructed for the development of water and power, or either, which would result from the expenditure of funds under this chapter for enhancement of fish and wildlife and recreation in connection with such works.

11915. All moneys deposited in the Central Valley Water Project Construction Fund pursuant to the provisions of Section 12.1 of Chapter 138, Statutes of 1964, First Extraordinary Session and subdivision (c) of Section 6217 of the Public Resources Code, and all accruals to such moneys so deposited, are hereby appropriated to the department for expenditure by the department without regard to fiscal years for the purposes of the construction fund, in amounts equal to allocations to recreation and fish and wildlife enhancement and to the costs of acquiring rights-of-way, easements and property for recreation development which have become effective pursuant to Section 11912.

11915.1. The provisions of this chapter shall not limit the department in the financing and construction of any of the facilities of the State Water Resources Development System pursuant to the provisions of Chapter 8 (commencing with Section 12930) of Part 6, nor shall they constitute a limitation on or modification of the responsibility of the department to make allocations of costs

provided for in water supply contracts executed pursuant thereto.

11915.5. For the purpose of furthering recreation in any project of the department, the department may exchange any real property it has acquired for property in the state owned by the United States which is of substantially equal value, whether or not such real property of the United States is adjacent to or needed for any project of the department. Such title or rights as the department deems necessary for the proper operation and maintenance of the water conservation, flood control or power features of any water project shall not be included in any exchange consummated under this section.

Any such exchange involving real property acquired by the department solely for recreation shall be concurred in by the Department of Parks and Recreation. Any such exchange involving property acquired by the department solely for fish and wildlife purposes shall be concurred in by the Department of Fish and Game. Any such exchange involving property acquired solely for fish, wildlife and recreational purposes shall be concurred in by the Department of Fish and Game and the Department of Parks and Recreation. Real property of the United States not necessary for a project of the department shall be acquired by the department by exchange under this section only if another agency of state government has agreed to acquire such real property from the department for the actual cost to the department of the real property which is to be given in exchange therefor; provided, that any amount appropriated to the department to reimburse it for prior expenditures for acquisition of such land shall be deducted from the actual cost.

11917. The Department of Fish and Game shall manage fish and wildlife resources at state water projects, including any such additional resources as are created by such projects, in a manner compatible with the other uses of such projects.

11918. The Department of Parks and Recreation is authorized to design, construct, operate, and maintain public recreation facilities at state water projects, with the exception of the planning, design, and construction of boating facilities, which shall be the responsibility of the Department of Navigation and Ocean Development pursuant to subdivision (c) of Section 50 of the Harbors and Navigation Code. Before commencing the construction of any such facilities, the Department of Parks and Recreation shall submit its plans and designs to the local governmental agencies having jurisdiction over the area involved. The Department of Parks and Recreation shall make every effort to fulfill its responsibilities under this section by entering into contracts with the United States, local public agencies, or other entities, to the end that maximum development of the recreational potential of state water projects shall be realized. The Department of Parks and Recreation shall have the authority to establish and enforce standards for the

Newspaper 3/20 (by hand)

Lake Perris SRA

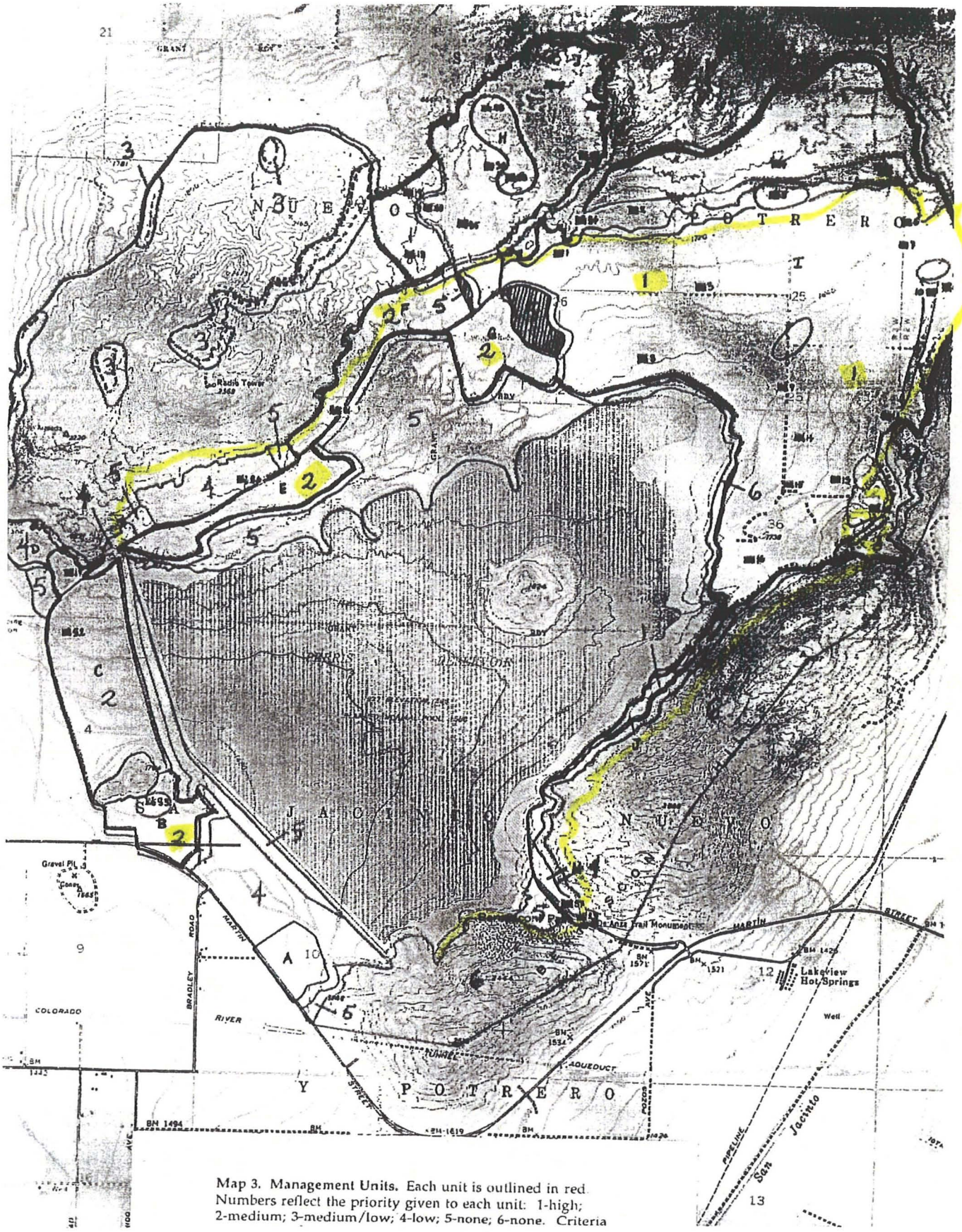
Department of Parks and Recreation
Monthly Attendance

Southern Field Division — Inland Empire District

MONTH-YEAR	PAID DAY USE	FREE DAY USE	OVERNIGHT CAMPING	TOTAL ATTENDANCE
7/1/2001	164,908	9,347	34,035	208,290
8/1/2001	132,216	7,414	34,497	174,127
9/1/2001	109,274	6,122	22,529	137,925
10/1/2001	47,922	2,724	16,964	67,610
11/1/2001	16,436	4,820	11,455	32,711
12/1/2001	9,307	742	6,903	16,952
1/1/2002	25,165	1,486	7,929	34,580
2/1/2002	0	45,374	8,396	53,770
3/1/2002	30,431	28,014	15,579	74,024
4/1/2002	70,313	48,157	20,351	138,821
5/1/2002	85,071	39,221	27,570	151,862
6/1/2002	145,594	0	29,816	175,410
7/1/2002	171,993	0	38,222	210,215
8/1/2002	144,186	0	39,512	183,698
9/1/2002	102,179	0	26,038	128,217
10/1/2002	22,788	18,974	19,769	61,531
11/1/2002	13,021	17,721	12,954	43,696
12/1/2002	5,065	28,888	6,341	40,294
1/1/2003	24,574	1,444	9,663	35,681
2/1/2003	31,631	1,846	8,751	42,228
3/1/2003	49,397	2,829	8,780	61,006
4/1/2003	52,297	2,955	18,338	73,590
5/1/2003	132,745	7,369	28,334	168,448
6/1/2003	122,412	6,828	27,822	157,062
7/1/2003	174,389	9,978	34,414	218,781
8/1/2003	173,614	9,829	35,342	218,785
9/1/2003	90,409	5,182	18,552	114,143
10/1/2003	35,361	6,349	20,615	62,325
11/1/2003	22,540	1,220	9,074	32,834
12/1/2003	14,235	2,923	4,108	21,266
1/1/2004	24,728	2,398	11,291	38,417
2/1/2004	13,839	3,780	5,493	23,112
3/1/2004	56,803	28,019	12,770	97,592
4/1/2004	70,190	4,014	24,160	98,364
5/1/2004	125,575	7,443	23,991	157,009

(OVER)

MONTH-YEAR	PAID DAY USE	FREE DAY USE	OVERNIGHT CAMPING	TOTAL ATTENDANCE
6/1/2004	125,649	7,171	28,290	161,110
7/1/2004	161,741	9,255	42,152	213,148
8/1/2004	126,394	7,365	26,078	159,837
9/1/2004	93,939	5,462	23,224	122,625
10/1/2004	25,726	4,075	12,049	41,850
11/1/2004	11,078	2,631	5,572	19,281
12/1/2004	8,715	30,489	4,050	43,254
1/1/2005	14,210	824	7,016	22,050
2/1/2005	9,702	490	4,343	14,535
3/1/2005	36,701	4,631	8,274	49,606
4/1/2005	72,282	1,250	18,014	91,546
5/1/2005	124,594	6,031	19,702	150,326
6/1/2005	117,876	6,642	23,091	147,609
7/1/2005	185,894	10,686	36,491	233,071
8/1/2005	127,585	7,123	26,305	161,013
9/1/2005	68,081	4,167	17,841	90,089
10/1/2005	21,923	4,557	5,902	32,382
11/1/2005	10,654	2,251	5,954	18,859
12/1/2005	5,324	1,246	3,083	9,653
1/1/2006	8,428	1,810	5,540	15,778
2/1/2006	5,719	4,669	5,652	16,040
Total Attendance:	**3,872,823**	**486,234**	**1,008,981**	**5,368,038**
Average Attendance:	69,158	8,683	18,018	95,858



Map 3. Management Units. Each unit is outlined in red. Numbers reflect the priority given to each unit: 1-high; 2-medium; 3-medium/low; 4-low; 5-none; 6-none. Criteria

500,000 A-F

LAKE PERRIS FACILITY SUMMARY

Park Open:	Spring 1971 Dedicated May 1973
Total Acreage:	8,800 acres (includes lake)
Highest Point:	2,2692 feet (BernasconiHills)
Lowest Point:	1,478 feet (Mid dam area)
Lake Elevation:	low pool: 1,565ft. high pool:1,588 ft.
Lake Depth:	low pool: 85 ft. high pool: 108 ft.
Storage Capacity:	low pool: 80,000 AF, high pool: 122,000 AF
Surface Area:	low pool: 1,800 acres, high pool: 2,200 acres
Roads:	32.2 miles paved, 10 miles maintained dirt
Day Use Parking:	2,700 car spaces, 422 Car and Boat trailer
Launch Ramps:	4 (3, 8 lanes, 1, 5 lanes)
Boarding Docks:	8 (includes ADA fishing dock)
Marina:	250 boat slips, 4,000 sq ft. store
Trails:	10 miles paved bicycle trail 15 miles harrowed riding trail 5 miles maintained hiking trail
Restrooms:	34 Restroom Buildings (235 toilet fixtures) 64 chemical toilets
Campsites:	431 family (254 hook-up with water, electrical, gray water drains,177 tent campsites), 6 group campsites developed (25-100 person each and up to 129 vehicles total) 1 Equestrian camp, 10 units (primitive)
Picnic Tables:	1,268
Stoves:	710
Drinking Fountains	65
Benches	62
Landscaping	10,090 trees (with bubblers) 6,900 shrubs, 55 acres turf 39 acres ground cover 75 miles PVC irrigation line

Potential Impacts to the San Jacinto Wildlife Area/Lake Perris Core Reserve area from altering the elevation of the Lake Perris Dam.

Threatened or endangered species:

A) Occupied by three species: Stephen's kangaroo rat, least Bell's vireo, and the Southwest willow flycatcher
B) Occasional wintering site for Bald eagles, one attempt at nesting has been documented
C) Potential habitat for many more: including the California gnatcatcher
D) Documented presence known for at least 29 California species of special concern: 17 birds, 4 mammal, 6 reptiles and amphibians, and 2 plants.
    a. Up to 6 active burrowing owl nests documented annually since 2000
    b. Long eared owls documented nesting in grassland
    c. Key foraging area for resident golden eagles
    d. Foraging habitat for two bat species
    e. Red diamond rattlesnakes of all size classes regularly sited

The San Jacinto Wildlife Area/Lake Perris Core Reserve provides reproductive and foraging habitat for numerous other wildlife species most notable are neo-tropical migrant birds and large mammals including top carnivores like the mountain lion, bobcat, and coyote.

Impacted resources-habitat types: each increasingly rare locally in Riverside County and in the State of California

A) California Native grassland
    a. Estimates very but it is generally agreed upon that at least 95% of grasslands have disappeared in North America
    b. Only 2% of California's grasslands are vegetated by native perennial grasses
    c. Lake Perris' SKR-preserve is a mixed native California and exotic annual grassland with a high diversity of associated native flowering plant species present, which presents an important opportunity for restoration (over 80 species of native flowering plants)
B) Coastal sage scrub
    a. Coastal sage scrub habitats have been so affected by disturbance that estimates say that there is somewhere between 10-33% left in tact in California
C) Riparian
    a. Temporary impacts to riparian habitats along the East end of the lake, on the island, and in front of the Lake Perris dam

Stephens' Kangaroo Rat Preserve:
The San Jacinto Wildlife Area/ Lake Perris (SJWA/LP) Core Reserve totals 10,932 acres, 3640 of which are considered occupied. The San Jacinto Wildlife Area/ Lake Perris Core Reserve, along with the Lake Mathews-Estelle Mountain Core Reserve, is one of two first priority core reserves in Riverside County, according to the Recovery Plan for the Stephens' Kangaroo Rat. Priority status is given based on the total amount of habitat, the amount of occupied habitat, and potential threat of disturbance. At the proposed 1720' elevation/ 500,000 AF level there would be a loss of approximately 1535 acres of occupied core habitat. This is approximately 42% of the SJWA/LP core habitat area.

The San Jacinto Wildlife Area/Lake Perris Core Reserve is important partly because it is a blending of diverse vegetation communities, including sensitive ones, leading to incredibly high biodiversity. Nearly 200 species of animals and 150 species of plants have been documented on the reserve. Further fragmentation of these currently preserved lands will have a negative effect on biodiversity locally.

Lowering the level of the lake for recreation only:
Lowering the level of Lake Perris will offer outstanding opportunities for habitat restoration.

November 4,2005

Summary of activities to date of, Least Bell's Vireo, *Vireo bellii pusillus,* and Southwest Willow Flycatcher, *Empidonax traillii extimus*, at Lake Perris State Recreation Area.

Least Bell's Vireo (LBVI) were first documented at Lake Perris SRA in 2001. Presence/ absence surveys for sensitive species were done in conjunction with the construction planning for the paved bike path which currently runs around the Eastern and Southern periphery of the lake. Since that first Least Bell's Vireo documentation two to three presence/ absence surveys have been done annually. For the first time, during the 2005 surveys a pair Southwest Willow Flycatcher (SWFL) was documented. This pair was recorded in the same location on two occasions approximately a month apart suggesting an attempt at nesting. The center of activity can be generally described as the willow riparian zone at the Southeast end of the lake.

Year	# of LBVI (pairs)	Juveniles (y/n)	# of SWFL (pairs)	Juveniles (y/n)
2001	3	Yes	0	No
2002	2	Yes	0	No
2003	2	Yes	0	No
2004	2	Yes	0	No
2005	1	Yes	1	No

Additional note:
California gnatcatchers, *Polioptila californica*, have been reported by birders in sage scrub habitats just above the willow riparian zone on the South side of the lake but never confirmed during formal surveys. Blue grey gnatcatchers, *Polioptila caerulea,* have been confirmed and may have previously been misidentified as California gnatcatchers.

Other management activities undertaken to provide for these sensitive species are, annual Brown-headed cow bird, *Molothrus ater*, trapping cycles and intense management to eliminate and maintain the elimination of Tamarisk, *Tamarix* sp., infestations within the potential habitat zone.

MWD
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Date: July 28, 2005

To: Brian Folsom, Project Management Unit, Corporate Resources Group

From: Robert Harding, System Analysis Unit, Water Resource Management Group

Subject: Reservoir Reconnaissance Study

Metropolitan management requested staff to perform a reservoir reconnaissance study to determine if additional surface water storage would be necessary to meet future water demands or capture additional water supplies. This memo presents the results of the supply analysis performed to determine if additional surface water storage could be utilized. The reservoir reconnaissance study was conducted using the IRPSIM model, which models year to year storage operations.

IRPSIM Reliability Modeling

IRPSIM uses a modeling method known as sequentially indexed Monte-Carlo simulation. In short, the model integrates projections of demands and water supplies for each forecast year and adjusts each independent projection up or down, based on an assumed pattern of future weather drawn from the historic record. For instance, if Metropolitan expected the weather over the next 20 years (2005-2025) to be the same as the last 20 years (1984-2004), then IRPSIM would adjust the projected 2005 demands and supplies using the historical 1984 hydrology, and adjust the projected 2006 demands and supplies using the historical 1985 hydrology, and so on.

Metropolitan cannot predict the weather for any forecast year. Instead, IRPSIM cycles through historical years of hydrology to generate a probability distribution of reliability for each forecast year. In this way, Metropolitan can evaluate the probability of being in shortage or surplus for each forecast year, given the range in historical hydrology. This method of sequential analysis is effective in capturing the operation of storage resources that are drawn upon and refilled based on supplies and demands.

Study Methods

For this study, a hypothetical surface reservoir with unlimited put, take, and storage capacity was created in IRPSIM. The unlimited reservoir was added to the existing resource portfolio,

and operated as the lowest priority storage program. This approach produces the full range and timing of possible benefit from the new reservoir, beyond that of existing programs.

To see if there was a benefit to locating the reservoir on a particular part of the system, the analysis was repeated three times, with the reservoir located in Metropolitan's blended-area, on the SWP system, and on the CRA system.

After the preliminary results were reviewed, a second analysis was created with the put, take and storage capacity of the blended-area reservoir limited to 750,000 acre-feet. This simulation illustrates how the reservoir would operate if it were limited to a realistic size. The following modeling assumptions were used:

- Demands based on the draft 2005 System Overview Existing and Contracted Sales Model run
- Resource portfolio based on 2005 Budget Process IRPSIM run
    - CRA supplies produced by CRSS simulation 2004-06-013
        - Initial Reservoir conditions based on USBR 06/09/2004 24-month study projections for end of December 2004
        - This run does not allow MWD to take partial surplus under 1125E until a full aqueduct is delivered.
    - SWP supplies taken from the 2002 Reliability Report for 2021 LOD
    - SWP blending restrictions are phased out by 2008
    - Inland feeder online in 2007
    - 2006 – 2050 simulation period
    - 1922 – 1998 historical hydrologies
    - Hypothetical reservoir online in 2015
    - Beginning of simulation storage set to 1/1/2005 actual levels
    - Storage programs operated under the following general priorities:

Priority	Take	Put
1	SWP Carryover	Emergency Storage
2	CRA Storage Programs	Local Surface Storage
3	Local Surface Storage	Local Groundwater Programs
4	SWP Storage Programs	SWP Storage Programs
5	Local Groundwater Programs	Flexible Storage
6	Flexible Storage	CRA Storage Programs
7	Hypothetical Reservoir	SWP Carryover
8		Hypothetical Reservoir

Study Scenarios

Utilization of both the limited, and unlimited reservoirs was evaluated under the three different supply scenarios, described below:

1. *Baseline*
    - Local resource programs build to 500,000 acre-feet by 2025 and remain at that level through the remainder of the simulation
    - Conjunctive use programs inside of Metropolitan's service area continue to operate as presently contracted through 2050
    - Conjunctive use programs outside of Metropolitan's service area are removed from the simulation as contracts expire. Takes of water remaining in these programs beyond the contract end dates are allowed

2. *Continued conjunctive use*
    - Local resource programs build to 500,000 acre-feet by 2025 and remain at that level through the remainder of the simulation
    - Conjunctive use programs inside of Metropolitan's service area continue to operate as presently contracted through 2050
    - Conjunctive use programs outside of Metropolitan's service area continue to operate as presently contracted through 2050.

3. *Continued conjunctive use and increased local production*
    - Local resource programs build to 500,000 acre-feet by 2025, and continue to increase to 750,000 acre-feet by 2050
    - Conjunctive use programs inside of Metropolitan's service area continue to operate as presently contracted through 2050
    - Conjunctive use programs outside of Metropolitan's service area continue to operate as presently contracted through 2050

Results

Figures 1, 2, and 3 show the total 2015 to 2050 production by trial of the unlimited reservoir under the three different supply scenarios, in each of the three locations.

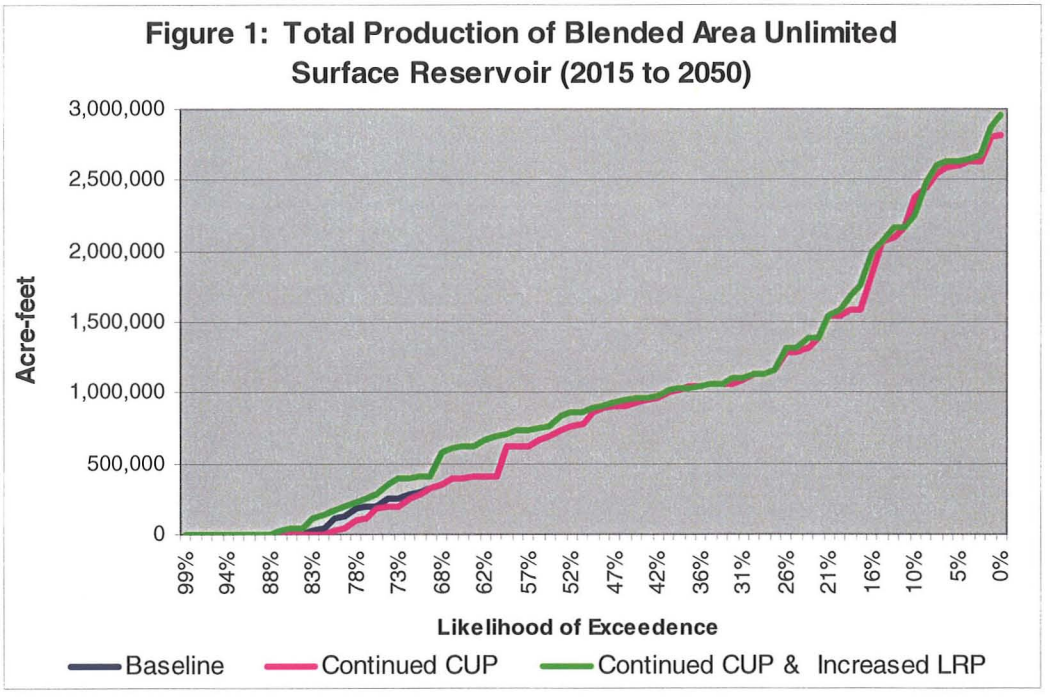


Figure 1: Total Production of Blended Area Unlimited Surface Reservoir (2015 to 2050)
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
Acre-feet
99%
94%
88%
83%
78%
73%
68%
62%
57%
52%
47%
42%
36%
31%
26%
21%
16%
10%
5%
0%
Likelihood of Exceedence
Baseline
Continued CUP
Continued CUP & Increased LRP

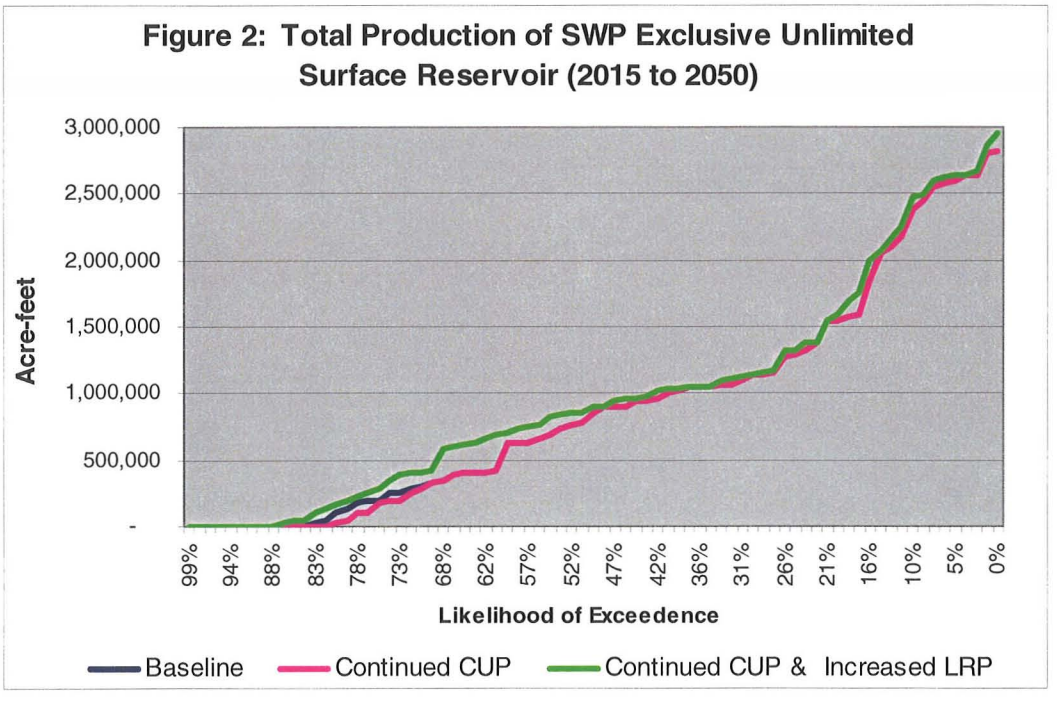
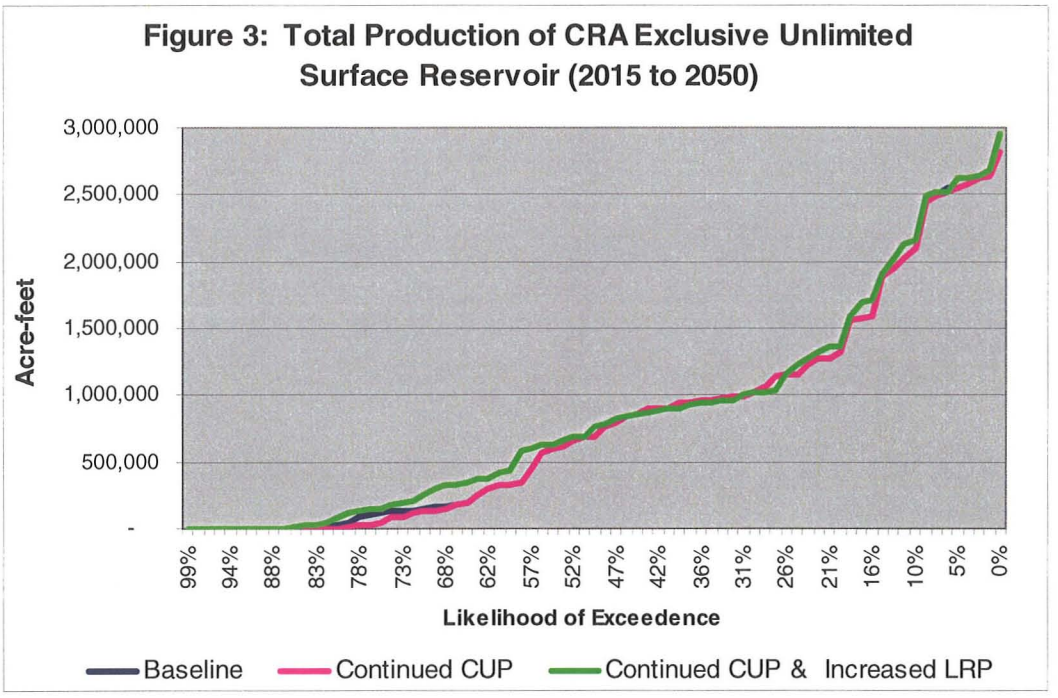


Figure 2: Total Production of SWP Exclusive Unlimited Surface Reservoir (2015 to 2050)
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
-
Acre-feet
99%
94%
88%
83%
78%
73%
68%
62%
57%
52%
47%
42%
36%
31%
26%
21%
16%
10%
5%
0%
Likelihood of Exceedence
Baseline
Continued CUP
Continued CUP & Increased LRP

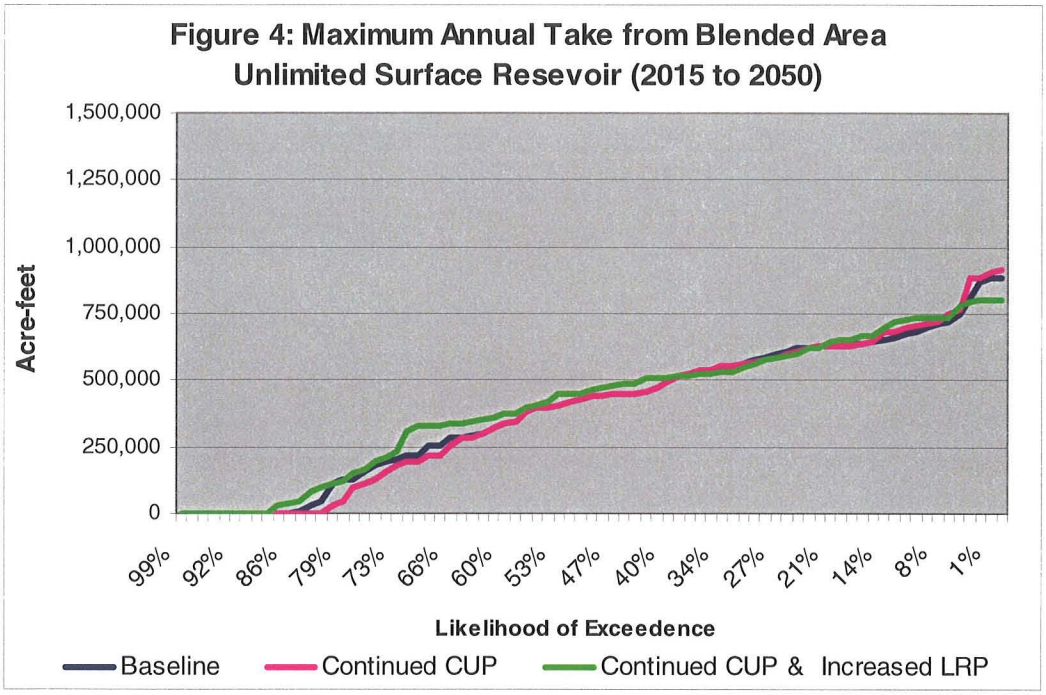


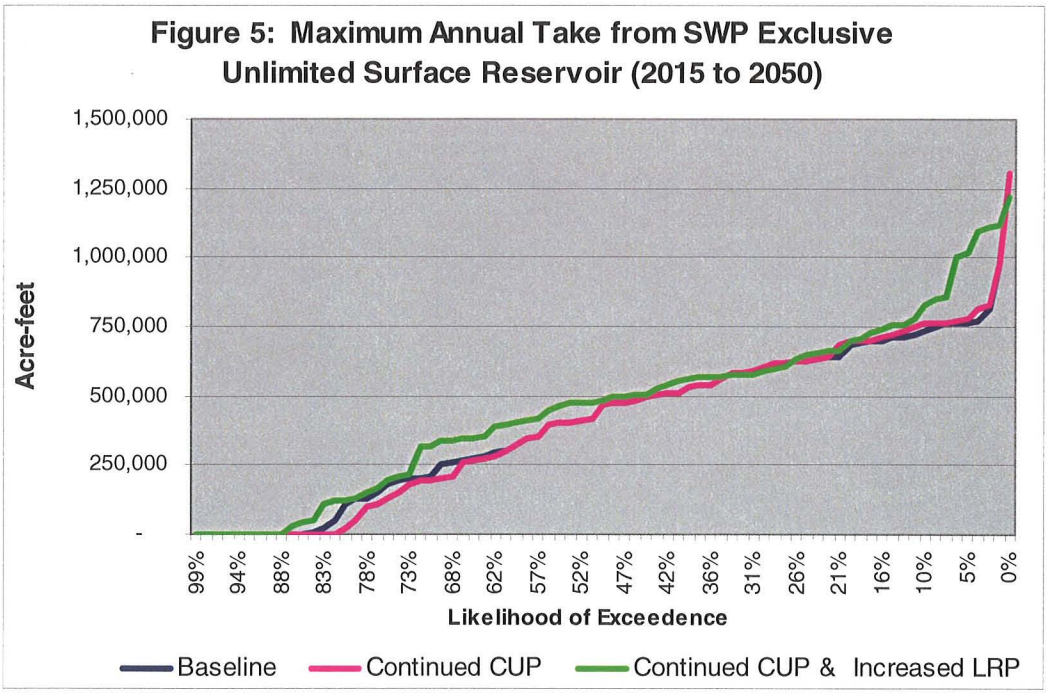
The charts above, show similar patterns of total production under all three supply scenarios, and in all three locations. These results are summarized in Table 1 below.

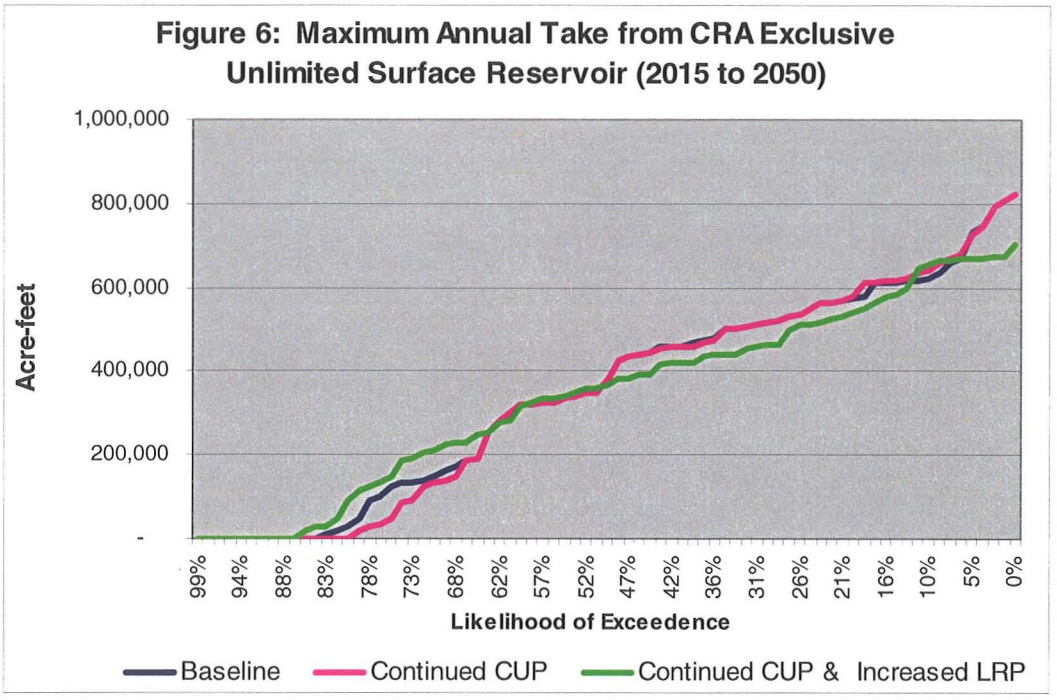
Table 1: Summary of Total Production (acre-feet) for Three Unlimited Reservoir Locations, Under Three Different Supply Scenarios.

	Supply Scenario	Maximum Use	50% Exceedence	Trials w/ No Use
Blended Area				
	Baseline	2,800,000	820,000	14%
	Continued CUP	2,800,000	820,000	18%
	Continued CUP & Inreased LRP	2,950,000	880,000	12%
SWP Exclusive				
	Baseline	2,800,000	820,000	14%
	Continued CUP	2,800,000	820,000	18%
	Continued CUP & Inreased LRP	2,950,000	880,000	12%
CRA Exclusive				
	Baseline	2,800,000	690,000	16%
	Continued CUP	2,800,000	690,000	19%
	Continued CUP & Inreased LRP	2,950,000	730,000	13%

Figures 4, 5, and 6, show the maximum annual production by trial, for the three different supply scenarios, and reservoir locations.







Figures 4, 5, and 6, show that the maximum annual production does not vary much between the three different supply scenarios, but does differ somewhat by reservoir location. The results of the maximum annual take analysis are summarized in Table 2.

Table 2: Summary of Maximum Annual Production (acre-feet) for Three Unlimited Reservoir Locations, Under Three Different Supply Scenarios.

	Supply Scenario	Maximum Take	50% Exceedence	Trials w/ No Takes
Blended Area				
	Baseline	880,000	430,000	14%
	Continued CUP	920,000	430,000	18%
	Continued CUP & Inreased LRP	800,000	460,000	12%
SWP Exclusive				
	Baseline	1,300,000	440,000	14%
	Continued CUP	1,300,000	440,000	18%
	Continued CUP & Inreased LRP	1,200,000	480,000	12%
CRA Exclusive				
	Baseline	820,000	370,000	16%
	Continued CUP	820,000	370,000	19%
	Continued CUP & Inreased LRP	700,000	360,000	13%

Figures 7, and 8, show the results of the same analysis when the put, take, and storage capacities of the blended-area reservoir are limited to 750,000 acre-feet.

Figure 7: Total Production of 750 TAF Blended Area Surface Reservoir (2015 to 2050)

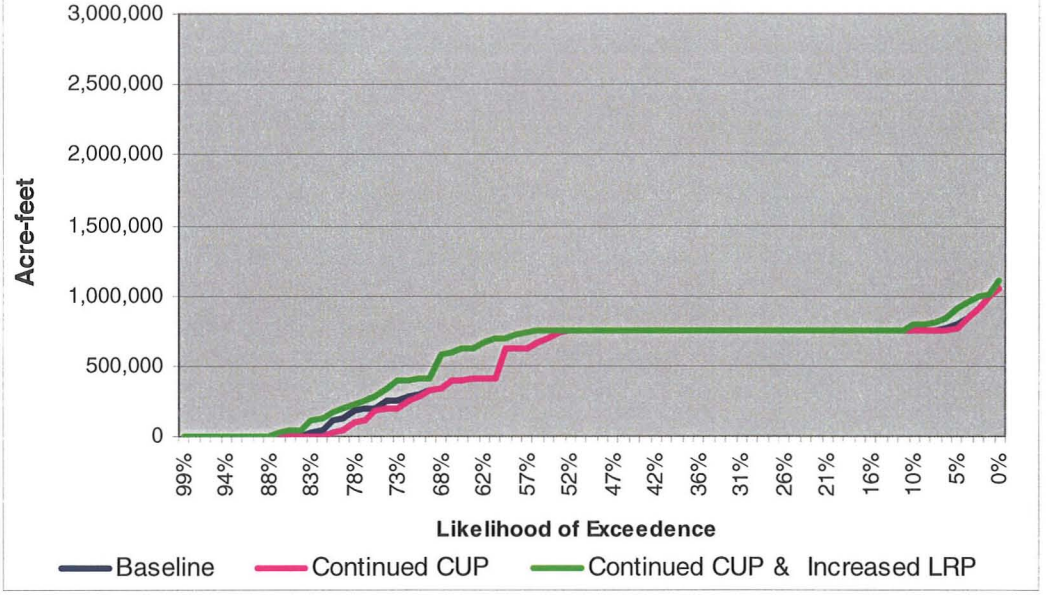
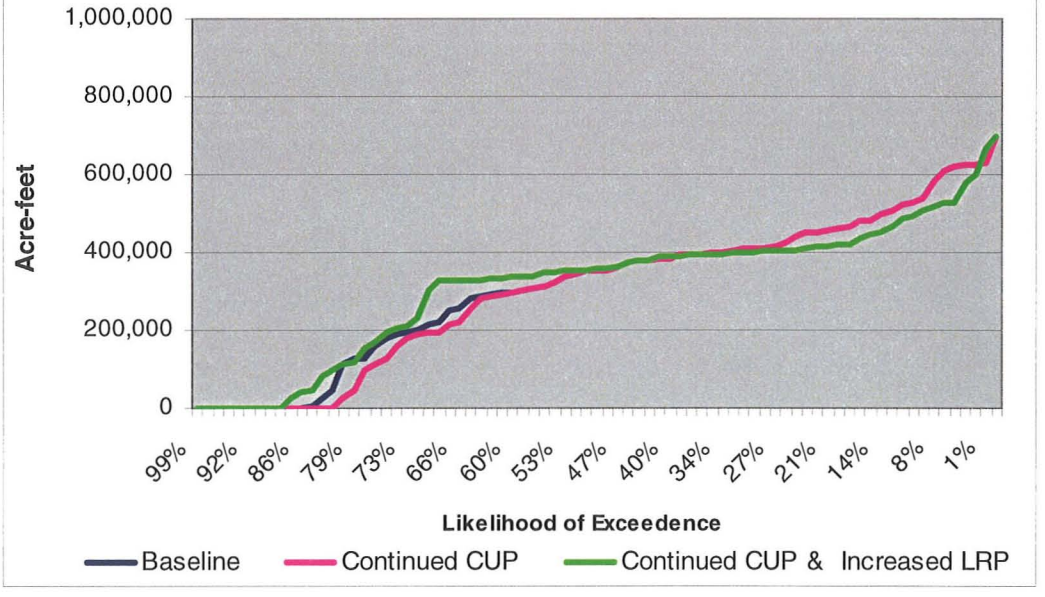


Figure 8: Maximum Annual Take from 750 TAF Blended Area Surface Reservoir (2015 to 2050)



Results of this analysis are similar to the unlimited analyses; neither the total production or maximum annual production of the limited reservoir vary much under the different supply

scenarios. The limited reservoir also has about the same overall frequency of use as the unlimited reservoirs, but the range of use is limited by the put, take and storage capacity constraints.

Conclusions

In the baseline case, the analysis indicates that Metropolitan could use between 690 TAF and 890 TAF of surface storage at the 50 percent exceedance level over the study period. The usage of a 750 TAF acre-foot reservoir was evaluated for both total and annual usage over the 2015 to 2050 time frame. Over the study period, a 750 TAF capacity reservoir would provide a total yield of 750 TAF approximately 52 percent of the time. Annual takes (withdrawals) from this same reservoir would reach approximately 350 TAF about 50 percent of the time. A 750 TAF capacity reservoir appears feasible from a water supply standpoint.

PERRIS RECONNAISSANCE STUDY
EMERGENCY DRAWDOWN FLOWS

RES.EL. FT.	HEAD FT.	DR'WD'N FT.	DRD'N EL. FT.	AREA 1 ACRES	AREA 2 ACRES	AVG.AR. ACRES	VOLUME AF	FLOW CFS
1542	62	6.2	1535.8	1350	1200	1275	7905	399
1563	83	8.3	1554.7	1720	1660	1690	14027	707
1588	108	10.8	1577.2	2292	2150	2221	23987	1209
1640	160	16.0	1624	3182	2923	3053	48840	2462
1706	226	22.6	1683.4	4247	3882	4065	91858	4631
1752	272	27.2	1724.8	4540	4360	4450	121040	6102
1814	334	33.4	1780.6	5000	4900	4950	165330	8335

BASED ON REQUIRED DRAWDOWN OF 10 PERCENT OF HEAD IN 10 DAYS
BOTTOM OF RESERVOIR AT ELEV. 1480 FT.

PERRIS DAM RECONNAISSANCE STUDY
AREA SAVED FROM SUBMERGENCE BY NE.DAM

BASE ELEV. = 1600 FT.

RES'V'R ELEV FT.	AREA SAVED ACRES	DELTA VOL SVD AF	TOTAL VOL SVD AF	ORIG VOL AF	NEW VOL AF	ORIG AREA ACRES	NEW AREA ACRES
1640	400	8000	8000	257000	249000	3200	2800
1706	1100	49500	57500	500000	442500	4200	3100
1752	1350	56350	113850	700000	586150	4550	3200
1814	1700	94550	208400	1000000	791600	5000	3300

ALL AREAS SAVED ARE VERY APPROXIMATE

PERRIS REMEDIATION STUDY
VOLUME OF EAST DAM
Assumes freeboard of 13 ft. and foundation excavation of 8 ft.

RESERVOIR AT ELEV. 1640 FT.

										TOTAL
LENGTH	FT.	1350	4000	3000						8350
GROUND LEVEL	FT.	1620	1600	1620						
DAM HEIGHT	FT.	41	61	41						
DAM X-SEC.AREA	SQ.FT.	7523.5	15463.5	7523.5						
DAM VOLUME	CU.YDS.	376175	2290889	835944.4						3503008

RESERVOIR AT ELEV. 1706 FT.

										TOTAL
LENGTH	FT.	1500	4500	1500	1500	1500	2100			11100
GROUND LEVEL	FT.	1620	1600	1605	1640	1675	1690			
DAM HEIGHT	FT.	107	127	122	87	52	37			
DAM X-SEC.AREA	SQ.FT.	44351.5	61531.5	56974	29971.5	11544	6271.5			
DAM VOLUME	CU.YDS.	2463972	10255250	3165222	1665083	641333.3	487783.3			16214672

RESERVOIR AT ELEV. 1752 FT.

										TOTAL
LENGTH	FT.	1550	4600	2400	1500	1500	1500	1700		14750
GROUND LEVEL	FT.	1625	1600	1605	1630	1655	1680	1725		
DAM HEIGHT	FT.	148	173	168	143	118	93	48		
DAM X-SEC.AREA	SQ.FT.	82584	111671.5	105504	77291.5	53454	33991.5	9984		
DAM VOLUME	CU.YDS.	4740933	19025515	9378133	4293972	2969667	1888417	628622.2		42925259

RESERVOIR AT ELEV. 1814 FT.

										TOTAL
LENGTH	FT.	2000	4600	2400	1500	1500	1500	1500	1700	16700
GROUND LEVEL	FT.	1635	1600	1605	1630	1655	1680	1725	1725	
DAM HEIGHT	FT.	200	235	230	205	180	155	110	110	
DAM X-SEC.AREA	SQ.FT.	148000	202687.5	194350	155287.5	120600	90287.5	46750	46750	
DAM VOLUME	CU.YDS.	10962963	34531944	17275556	8627083	6700000	5015972	2597222	2943519	88654259

LAKE PERRIS REMEDIATION STUDY
MAIN DAM VOLUME FOR ENLARGEMENTS

ASSUMES BOTTOM ELEVATION OF 1480 FT. AND 8 FT. OF EXCAVATION TO FOUNDATION
DAM VOLUME FOR DAM HEIGHT OF 128 FT. IS 25 MILLION CUBIC YARDS
MAXIMUM CROSS-SECTIONAL AREA IS 62464 SQ. FT.(5120 UNDER CREST, 57344 REMAINDER)
EFFECTIVE LENGTH FOR 1588 FT. ELEV. IS 10800 FT.
ASSUME EFFECTIVE LENGTH OF 10800+2*DELTA H FOR OTHER HTS.
ASSUME FREEBOARD OF 13 FT. FOR DAMS HIGHER THAN 1600 FT.

RES.EL. ft.	DAM EL. ft.	NOMINAL DAM HT. ft.	DAM HT. ft.	EFFECT. LENGTH ft.	EMBANK. VOL. ml.cu.yds.
1588	1600	120	128	10800	25
1640	1653	173	181	10906	49
1706	1719	239	247	11038	91
1752	1765	285	293	11130	129
1814	1827	347	355	11254	190

Lake Perris Enlargement Options
Saddle Dam Quantities

Quantity Assumptions:

- 13 foot freeboard
- 4:1 slopes upstream & downstream slopes of main dam
- 2:1 slopes upstream & downstream slopes of saddle dams
- Quantities calculated from maps with 20 foot contours (accuracy is +/- 10 feet)

Dam Description / Water Elev / Capacity	Quantity (Cubic Yds) (rounded to nearest 1000)
Dam Elev 1719' / Water Elev 1706' / 500,000 AF	
Southeast Saddle Dam	132,000
Northeast Saddle Dam	407,000
Dam Elev 1765' / Water Elev 1752' / 700,000 AF	
Southeast Saddle Dam	624,000
East Saddle Dam	1,957,000
Northeast Saddle Dam	1,338,000
Dam Elev 1827' / Water Elev 1814' / 1,000,000 AF	
Southeast Saddle Dam	1,992,000
East Saddle Dam	4,945,000
Northeast Saddle Dam	4,570,000
Northwest Saddle Dam	831,000

Washington Group International

Integrated Engineering, Construction, and Management Solutions

Washington Group International provides the talent, innovation, and proven performance to deliver integrated engineering, construction, and management solutions for businesses and governments worldwide.

Washington Group International
2377 Gold Meadow Way, Suite 100
Gold River, CA 95670